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ABSTRACT

The diversity of grade reporting systems at the undergraduate level was studied at 24 of Canada's largest universities. The survey included English-speaking universities in all provinces. The grade reporting systems were divided into two main groups: those that report percentage equivalents of various grades (9 universities); and those that report qualitative and/or numerical equivalents of different grades (10 universities). Five universities do not fit into either of these categories. All nine universities of the first group have different reporting systems. Similarly, none of the 10 universities of the second group uses precisely the same qualitative/numerical equivalents. It is concluded that the lack of a common reporting system decreases effective communication in the educational system. It is proposed that a Canadian University Grade Reporting System be adopted to improve processing of student transcripts and decision-making related to both scholarship awards and to undergraduate and graduate admission procedures. This system would use a letter grade scale consisting of 12 categories (i.e., the four letters A-D, along with plus and minus affixes with accompanying numerical equivalents from 1 to 12). For example, A+ would have the numerical equivalent of 12, while D- would have the equivalent of 1. (SW)

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Grade Reporting Systems Among Canadian Universities: A Tower of Babble

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Abstract

This paper updates a study conducted a decade ago by the author which examined the great diversity of grade reporting systems in twenty-four of Canada's largest universities. For analysis purposes the grade reporting systems are divided into two main groups. The first consists mainly of Onterio institutions using a percentage scale of reporting with the number of passing grades ranging from three to twelve. The second includes universities from nearly all areas of Canada where the seven to twelve passing grades are equated with descriptive terms and/or numeric categories. Trends in the grading systems are analysed. Finally, a proposed Canadian University Grade Reporting System is recommended that, if adopted, should greatly improve the communication value of grades and also increase their effectiveness in decision-making related to both scholarship awards and to undergraduate and graduate admission procedures.

Tradition, politics, and cultural myths determine, to a large extent, the type of grade reporting systems used by Canadian universities. The typical professor adopts the reporting system approved by the university and has little concern with whether or not professors at other universities use the same system. However, in undergraduate and especially, graduate offices, hundreds of hours are spent each year attempting to convert different letter grade systems into the one that is used by the admitting institution. Very little co-ordination is conducted across universities either at the provincial or national level in relation to this task. As such, much duplication of effort exists, with the resultant continuation of the current imprecise hit-and-miss methods.

This paper consists of three parts. First, a description is presented of current letter grade reporting systems used at various Canadian universities. Second, a comparison is made of the current letter grade reporting systems with those used a decade earlier. Third, a Canadian University Letter Grade System is recommended.

Current Letter Grade Reporting Systems Used at Selected Universities

Twenty-four of Canada's largest universities were surveyed for information on their systems of reporting letter grades at the undergraduate level. The survey included English-speaking universities in all provinces. For purposes of analysis, the grading systems are categorized into two main types : those that report percentage equivalents of various grades (n=9) and those that report qualitative and/or numerical equivalents of different grades (n=10). Five universities do not fit into either of these categories and are therefore described separately.

Table 1 summarizes the percentage equivalents associated with letter grades used by nine universities, seven of which are in Ontario while the other two are in Quebec and Newfoundland respectively. The number of different grades issued by these universities range from 3 to 12 with a median of 8. Considering only the A- to A+ grades, there are only two universities, namely, Guelph and Queens, which have exactly the same percentage reporting system. For grades below the A level, the diversification of percentage intervals associated with different grades increases significantly.

Insert Table 1 about here

Table 2 outlines the reporting systems used by ten universities that equate grades with numerical equivalents and/or evaluative phrases. These universities are located in seven provinces. The number of different grades used by the universities listed in Table 2 range from 7 to 12 with a median of 9.5.

Insert Table 2 about here

As with Table 1 universities, there appears to be consistency in defining an A grade to mean "outstanding", "excellent" or "first class" performance. However,as with Table 1 universities, there is a definite lack of consistency in the use of descriptive terms with grades below A. For example, depending upon where a student is registered, a transcript containing a C could be interpreted as "satisfactory", "third class", "fairly competent" or "adequate".

Five Canadian universities (four located in western provinces) each have a unique system of reporting student status in that they do not issue letter grades. For example, at the University of British Columbia, academic standing is granted as follows: Class 1, 80 - 100%; Class 2, 65 - 79%; Pass, 50 - 64%. The University of Prince Edward Island also uses a percentage system but with slightly different percentage intervals as follows: First Class, 80 - 100%; Second Class, 70-79.9%; Pass, 50 - 69.9%. The University of Regina uses a percentage system but does not classify the percentages. However, for regular graduation, a student must attain a minimum weighted average of 60% whereas to graduate with distinction, the average must be a minimum of 80%. At the University of Saskatchewan, a new grading system was introduced in September,1982. It has eight categories as follows: 8 Exceptional; 7 Excellent; 6 Very Good; 5 Good; 4 Satisfactory; 3 Adequate; 2 Barely Acceptable; 1 Minimal Pass. The University of Alberta uses a point system as follows: 9,8 (excellent); 7,6 (good); 5,4 (pass); 3 (conditional); 2,1 (fail).

The foregoing descriptions highlight the tremendous diversity among grade reporting systems used by Canadian universities. All nine universities listed in Table 1 have different reporting systems, and similarly none of the ten universities reported in Table 2 use precisely the same qualitative/numerical grade equivalents.

Current Grade Reporting Systems Compared With Those Used During the Mid-1970'S

An earlier paper by Taylor (1977) outlined the differences in grade reporting systems among Canadian universities. The changes in 19 of the universities over the last decade are reported in Table 3. The most obvious trend is that those universities using the two major reporting systems have increased the number of letter grades they assign. Universities listed in Table 3 increased the number of different grades they use by 38 during the last decade. An interesting aspect of the trend is that the number of universities now reporting nine or more grades is twelve whereas in 1976 it was nine. Conversely, the number of universities reporting four or fewer grades in 1976 was six whereas now it has been reduced to three. In summary, there has been an approximate 30 percent increase during the last decade in the number of different letter grades assigned by nineteen major Canadian universities. Speculation as to the cause of this increase is reported in the following section.

Insert Table 3 about here

A Proposed Canadian University Grade Reporting System

How can Canadian universities bring some type of order into the grade reporting system? Before answering this question, it might be appropriate to review briefly the history of grade report systems and suggest some measurement principles relevant to the question.

History

At the beginning of the 20th century nearly all high schools and universities reported student achievement in terms of percentages. Letter grades (A-C) became popular after 1930 due mainly to 1) the need for grouping scores in order to encompass the newly invented concept of the standard error of measurement, as well as 2) the criticisms of percentage scores when the domain or universe of items supposedly measured was undefined, and 3) research showing the low inter and intra-scorer reliability of essay examinations. After World War 2, and particularly during the 1960's, the large increase in student enrollment, with the resultant increase in the diversity of student abilities, caused many universities to increase the number of grade categories in order to facilitate reporting the expanded individual differences in achievement. Grade reporting categories grew in an uncoordinated manner and eventually resulted in the diversity as shown in Tables 1 and 2.

Educational Measurement Principles

The topic of grading has had a long history within the discipline of educational psychology with most leading educational measurement texts devoting at least a chapter to the subject. What principles and /or opinions can be gleaned from this storehouse of information on grading practices?

Grades are basically value judgments.

A principle that is accepted by many leaders in educational measurement is that a letter grade should report an evaluative judgment. This means that the calculation of a letter grade should be based on an ordinal scale made up of categories such as "excellent", "good", "satisfactory", or whatever other phrases are chosen. A grade is not an interval scale although the data (tests/essay scores etc.) upon which a professor makes the evaluative judgments is sometimes assumed to be an interval scale. This means the practice of associating letter grades with percentage equivalents - a practice that belongs to the last century, should be discarded. The reason for this recommendation is that many instructors and many more students think that percentages are or should be used for assigning grades. This false assumption is clarified, for example, in the Carleton University 1985-86 undergraduate calendar on page 44 where it warns that "percentage equivalents are published solely to assist other institutions in interpreting letter grades. Students are advised that these equivalents have no internal meaning". As shown in Table 2 Carleton reports its grades using numerical equivalents. In summary, some universities report letter grades associated with percentage intervals. It must be emphasized that the percentages are used, or should be used, for reporting purposes. A difficulty arises when it is incorrectly thought that the purpose of using percentages is for calculating or assigning grades.

Tests should be based on the learning objectives for a course and not on a pre-conceived ideal distribution of percentage-correct scores.

Many professors score students' tests, projects, reports, and other assignments using numerals. They add the scores of the different variables, divide the sum by the total possible score, change the ratio into a percent and then, finally, assign a letter grade to the student based upon a predetermined Percentage => Letter Grade schedule such as the following:

A = 80 -100%
B = 65 - 79%
C = 50 - 64%
F = 0 - 49%

The Percentage => Letter Grade schedule is popular with beginning instructors and with students who feel the system is clear and unambiguous. However, as a system of assigning grades, it has many inherent problems.

One of the difficulties encountered by instructors when they decide the percentage equivalents of different grades prior to the students' completing a test is that the test then has to be designed so that the results fit the instructor's preconceived notion of what constitutes a "good" distribution of grades. If students are told that they must obtain at least "50 percent in order to pass," then the instructor must try to design the test so that, hopefully, very few, if any, students obtain a score less than 50 percent. It should be noted that when the test results turn out to be highly skewed compared with the instructor's expectations, often nefarious techniques are used to overcome the embarrassing situation. In this case, the choice is made from a number of alternatives such as adjusting the marks by applying a linear equation, administering an alternate test, making the next test easier or harder so as to balance the effects of the first one, or perhaps changing the grading standards. All of these highly unprofessional activities can be avoided if grading standards are judiciously made after the data are available.

Typical professor-constructed tests lack a domain reference.

Another problem encountered by users of the Percentage=> Letter Grade system is the lack of an adequate frame of reference for interpreting the percentage score. A 50 percent correct score on a test has no inherent meaning. On a test with difficult items, 50 percent correct could be considered a high mark whereas on a test with relatively easy items, it might indicate a very low score. The meaning of a particular percentage, therefore, varies depending upon the difficulty of the test. When one asks a typical instructor what 50 percent means in terms of subject matter content, it is extremely doubtful that a satisfactory answer will be forthcoming due to lack of a clearly defined domain of subject matter.

To maximize the possibility of measuring individual differences the mean score on a test should be half way between the maximum and the chance score.

Using percentage scores to assign grades, of course, causes the minimum amount of mental strain on professors since they are not required to make any subjective decisions. They can operate with a simple mechanical procedure. However, professors who use the percentage system assume a precision in their measuring technique that is unrealistic and

unattainable even by the most highly qualified test specialists. To obtain precision or reliability in tests, measurement specialists recommend that the average score should be approximately halfway between a perfect score and chance score. When this is the case, there is a greater possibility for scores to spread out and show maximum individual differences within the class -- a condition that would result in greater instructor confidence in the assignment of letter grades. Note that a procedure which allows Pass scores to be less than 50% maximizes the use of a larger possible score range. This procedure is very appropriate when the purpose of testing is to measure individual differences in order to assign grades. For example, when Fail is assigned to a score less than 50%, then only one-half of the potential distribution is actually used. The lower 50% of the distribution, 49% and below, is pooled into the Fail category and thus wasted.

Developing equivalent tests is a difficult process.

When absolute standards with predetermined cut-off points are used, it is assumed that instructors are able to prepare examinations in all subject areas at the same level of difficulty. This is not a valid assumption, a fact nearly every professor knows from experience.

The Proposed Canadian University Grade Reporting System

The previous section attempted to argue that percentage equivalents should not be associated with the reporting of letter grades. This procedure has already been adopted by the ten universities listed in Table 2. However, the nine universities listed in Table 1 will have to consider the advantages of changing and be convinced that a new system would benefit them in their grade processing procedures as well as benefiting the students they serve.

The final questions to be considered are: 1) How many letter grade categories are reasonable? and 2) What numerical equivalents should be associated with each grade? In answering the questions, let us assume we are working with large undergraduate populations that have been graded on a variety of tests/essay/projects etc. so that the range of scores is large and the resultant standard error of measurement is small. In such a situation, statisticians consistently recommend between 12 and 20 intervals for grouping scores as is normally the case when letter grades are assigned. Therefore, a letter grade scale consisting of 12 categories appears to be reasonable, accurate, and convenient. It is accurate to the extent that the average probability of a student being regarded within one grade point of the original grade when administered a parallel assessment would be at least 90% (Michelmore, 1981). Although simpler to conceptualize, the 3 to 8 grade scales used by

some universities sacrifice too much accuracy for any gain in convenience. (The pass-fail system is the ultimate in simplicity and convenience but, as the history of grading has shown over the last 20 years, whenever it is introduced it is soon abandoned). If one accepts the previous arguments then the simplest letter grade reporting scale would consist of four letters (A-D) along with plus and minus affixes with accompanying numerical equivalents from 1 to 12 as shown in Table 4. Evaluative phrases for certain grade categories are also suggested although some universities may wish to use different phrase or omit them altogether.

Insert Table 4 about here

Summary and Conclusion

A survey of Canadian universities has shown that they use a large variety of letter grade reporting systems. The lack of a common reporting system decreases effective communication and results in inefficient processing of student transcripts both at the undergraduate and graduate level. A proposed 12 grade reporting system offers an alternative that will, hopefully, allow grades to communicate effectively, conveniently, and with a minimum of error.

References

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TABLE 1

PERCENTAGE EQUIVALENTS OF UNCONDITIONAL PASSING GRADES
USED AT SELECTED CANADIAN UNIVERSITIES

PASSING GRADES	UNIVERSITY								
	WATERLOO	TORONTO	WINDSOR	OTTAWA	McGILL	WESTERN ONTERIO	MEMORIAL	GUELPH	QUEENS
A+	90-100 95	90-100 4.3 EXCELLENT	96 EXCELLENT	90-100 10 EXCEPTIONAL	N/A	90-100	ALL PERCENTS ARE REPORTED IN MULTIPLES OF FIVE	N/A	N/A
A	85-89 89	85-89 4.0 EXCELLENT	90 EXCELLENT	85-89 9 EXCELLENT	85-100 4	80-89	80-100 3	80-100	80-100
A-	80-84 83	80-84 3.7 EXCELLENT	93 EXCELLENT	80-84 8 EXCELLENT	80-84 3.7	N/A	N/A	N/A	N/A
B+	77-79 78	77-79 3.3 GOOD	77 GOOD	75-79 7 VERY GOOD	75-79 3.3	N/A	N/A	N/A	N/A
B	73-76 75	73-76 3.0 GOOD	72 GOOD	70-74 6 VERY GOOD	70-74 3.0	70-79	65-75 2	70-79	65-79
B-	70-72 72	70-72 2.7 GOOD	N/A	N/A	65-69 2.7	N/A	N/A	N/A	N/A
C+	67-69 68	67-69 2.3 ADEQUATE	67 FAIR	66-69 5 GOOD	60-64 2.3	N/A	N/A	N/A	N/A
C	63-66 65	63-66 2.0 ADEQUATE	62 FAIR	60-65 4 GOOD	55-59 2.0	60-69	55-60 1	60-69	50-64
C-	60-62 62	60-62 1.7 ADEQUATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D+	57-59 58	57-59 1.3 MARGINAL	57 PASS	55-59 3 PASSABLE	N/A	N/A	N/A	N/A	N/A
D	53-56 55	53-56 1.0 MARGINAL	52 PASS	50-54 2 PASSABLE	50-54 1.0	50-59	50 0	50-59	N/A
D-	50-52 52	50-52 0.7 MARGINAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NUMBER OF PASSING GRADES	12	12	9	9	8	5	4	4	3

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TABLE 2

QUALITATIVE AND NUMERICAL EQUIVALENTS OF UNCONDITIONAL PASSING GRADES
USED AT SELECTED CANADIAN UNIVERSITIES

PASSING GRADE	UNIVERSITY									
	CARLETON	CONCORDIA	McMASTER	SIMON FRASER	CALGARY	VICTORIA	DALHOUSIE	NEW BRUNSWICK	YORK	MANITOBA
A+	12	OUTSTANDING 4.3	1ST CLASS 12	EXCELLENT 4.33	N/A	1ST CLASS 9	3	4.3	EXCEPTIONAL 9	EXCEPTIONAL 4
A	11	OUTSTANDING 4.0	1ST CLASS 11	EXCELLENT 4.00	EXCELLENT 4.0	1ST CLASS 8	3	EXCELLENT 4.0	EXCELLENT 8	EXCELLENT 4
A-	10	OUTSTANDING 3.7	1ST CLASS 10	EXCELLENT 3.67	3.7	1ST CLASS 7	3	3.7	N/A	N/A
B+	9	VERY GOOD 3.3	2ND CLASS 9	GOOD 3.33	3.3	2ND CLASS 6	2	3.3	VERY GOOD 7	VERY GOOD 3.5
B	8	VERY GOOD 3.0	2ND CLASS 8	GOOD 3.00	GOOD 3.0	2ND CLASS 5	2	VERY GOOD 3.0	GOOD 6	GOOD 3
B-	7	VERY GOOD 2.7	2ND CLASS 7	GOOD 2.67	2.7	2ND CLASS 4	2	2.7	N/A	N/A
C+	6	SATISFACTORY 2.3	3RD CLASS 6	SATISFACTORY 2.33	2.3	PASS 3	1	2.3	COMPETENT 5	SATISFACTORY 2.5
C	5	SATISFACTORY 2.0	3RD CLASS 5	SATISFACTORY 2.00	SATISFACTORY 2.0	PASS 2	N/A	SATISFACTORY 2.0	FAIRLY COMP. 4	ADEQUATE 2
C-	4	SATISFACTORY 1.7	3RD CLASS 4	SATISFACTORY 1.67	1.7	N/A	1	N/A	N/A	N/A
D+	3	MARGINAL PASS 1.3	PASS 3	N/A	1.3	N/A	N/A	N/A	PASSING 3	N/A
D	2	MARGINAL PASS 1.0	PASS 2	MARGINAL 1.00	MINIMAL PASS 1.0	MARGINAL PASS 1	0	MINIMUM ACCEPTABLE 1	BARELY PASS 2	MARGINAL 1
D-	1	MARGINAL PASS 0.7	PASS 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NUMBER OF PASSING GRADES	12	12	12	10	10	9	9	9	8	7

Table 3

Changes by Canadian Universities in their Grade Reporting Systems: 1976-1986

Institution	Change in the Number of Grades Issued	Comments
Universities Currently Using a Percentage System		
Guelph	0	
McGill	+4	added A-,B+,B-and C+
Memorial	0	
Ottawa	+5	added A+,A-,B+,C+and D+
Queens	0	
Toronto	+8	added + and - to A,B,C,D
Waterloo	0	
Western Onterio	0	
Windsor	0	changed from numerical to percentage reporting
Universities Currently Using a Qualitative/Numerical System		
Calgary	+4	dropped A+, added A-, B-, C+, C-, and D+
Carleton	0	changed from percentage to numerical reporting
Concordia	+8	compared with Sir George Williams
Dalhousie	+1	added a C+
New Brunswick	0	
Manitoba	0	
McMaster	+8	changed from percentage to numerical reporting
Simon Fraser	0	
Victoria	0	
York	0	

Table 4

A Proposed Canadian University Grade Report System

Letter Grade	Numerical Equivalent	Evaluative Comment
A+	12	Excellent
A	11	Excellent
A-	10	Excellent
B+	9	Good
B	8	Good
B-	7	Good
C+	6	Satisfactory
C	5	Satisfactory
C-	4	Satisfactory
D+	3	Marginal
D	2	Marginal
D-	1	Marginal
F	0	Fail